

Exceptional service in the national interest



Transformational Solutions

for New Mexico Water Management and Policy

Congresswoman Michelle Lujan Grisham's

Water Innovation Summit

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NM Water Management and Policy



are Constrained . . .

- **Physical infrastructure** is poorly adapted to climate, conservation, and projected hydrology.
 - Reservoirs, irrigation systems
- **Economic systems** do not accurately value water and its benefits.
 - No usage fees, municipal and industrial prices do not reflect true costs.
- **Socio-ecological systems** are not balanced between human needs and ecosystem services.
 - Forests, rivers, biodiversity, etc.
- **Cultural practices and values** often constrain flexible management.
 - Agricultural, urban, recreational
- **Political and legal systems** limit flexibility and are often slow and difficult to change.
 - Prior appropriation, interstate compacts, state and local legislation, etc.

Current trajectory is not sustainable

- Extensive research suggests that current water resources in New Mexico are not sustainable.
 - Water resources are declining.
 - Climate changes are increasing variability and uncertainty.
- Water management agencies (already doing a great job) will require greater management flexibility.
- Transformational solutions are required.



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Transformational Solutions . . .

- . . . are disruptive to the *status quo*, to social, political and economic systems, and are often widely opposed.
- . . . need to be considered now, since maybe what seems impossible today will be possible tomorrow.



USFWS.

Governance Options - 1

- Rethink Prior Appropriation
 - Without adjudication, our primary mechanism for managing water, prior appropriation is “alive but irrelevant” (*R. Benson, 2012*).
 - Majority of water rights in NM are not adjudicated and are projected to take decades at least, with hundreds of thousands of potential litigants.
 - Waiting for adjudication creates administrative and financial uncertainty.
 - Adjudication is expensive, time consuming, and controversial.
 - No incentive for conservation or shortage sharing.
 - Senior users aren’t protected from cumulative impacts of many domestic wells (e.g., Bounds NM Supreme Court decision).
 - Disregards emerging economic, cultural, social, environmental costs, benefits, and realities.

Transformational Solutions

Governance Options - 2

- Alternatives to prior appropriation
 - Increase management authority at the State level.
 - Create new legislation and regulations to guide OSE
 - Institutionalize shortage sharing.
 - Implement and strengthen Active Water Resources Management (AWRM) in all basins.
 - Participatory, collaborative, science-based, decentralized management
 - Integrated across sectors/disciplines
 - Iterative learning cycles integrated with management and policy
 - Issue renewable licenses instead of permanent permits. (M.H. Benson, et al., in press)
 - Provide financial compensation for losses.
 - Fraught with litigation . . .



Governance Options - 3

- Institutionalize non-consumptive water rights for in-stream and other environmental uses.
- Share endangered species responsibility with other Rio Grande Compact states.
- Establish “State Ecologist” and/or state environmental policy act (like NEPA) to help protect integrated water-energy-food systems and ecosystems.



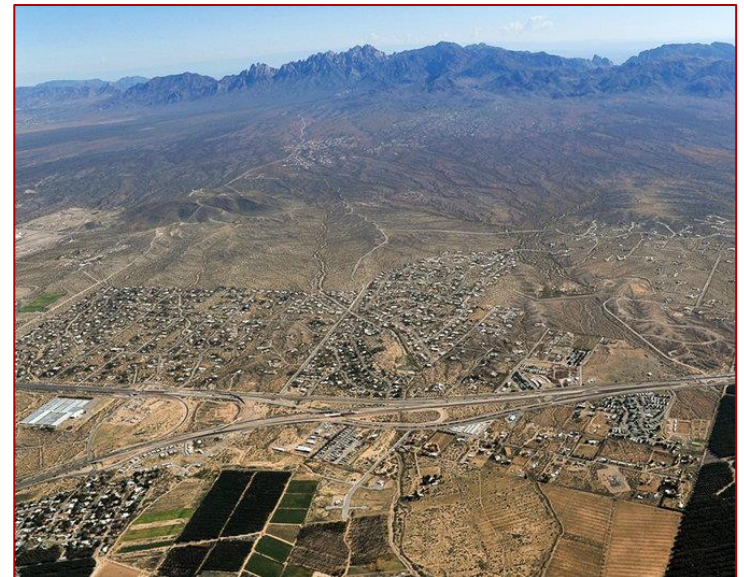
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Governance Options - 4

- Establish 100-year water supply requirement for future development and mandate enforcement.
 - State subdivision law establishes 40-year water supply requirement but isn't enforceable by the state.
- Establish mandatory links between planning for water, economic development, land use, and transportation.
- Dedicate agricultural zones and bosque parks, and preserve them with incentives/subsidies.



Reservoir and Storage Options - 1

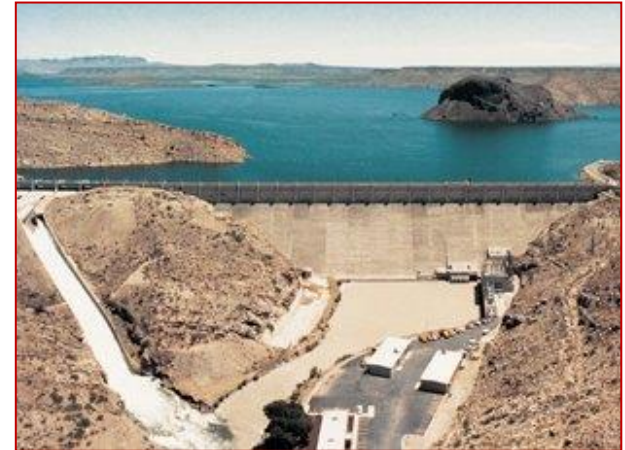
- Reduce storage at Elephant Butte Reservoir (6.7 ft/yr evaporation rate).
 - Maximize storage in Cochiti (4.3 ft/yr evaporation rate) and Abiquiu (4.2 ft/yr) within Rio Grande Compact and flood control constraints.
 - Release to maintain Compact balance and Lower Rio Grande operational flexibility.
 - Preliminary calculations suggest potential reduced evaporative losses and reduced volume of spills from Elephant Butte.
 - Could benefit both Middle and Lower Rio Grande.
 - Hard to do – requires reauthorization by Congress, acquisition of storage easements, and consideration of dam leakage.
 - Compact amendments could further increase flexibility.



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Reservoir and Storage Options -2

- Anticipate increasing need for monsoonal storage.
 - Store water temporarily in irrigation networks.
 - Enhance flood-buffering ecosystem services (wetlands, overbank flooding).
- Better manage upland forests to prevent erosion and foster retention of snowpack.
- Maximize use of New Mexico's Strategic Water Reserve



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Economic Options - 1


- Establish a severance tax or use fee on water.
 - Water belongs to the State (like timber, natural gas), but there is currently no fee to use it.
 - Make taxes/fees progressive and sectoral (municipal, agriculture)
- Establish central markets and standard, transparent processes for water and water rights sales and/or leases.
- Invest in/incentivize/subsidize high value agriculture and water-related industry.



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Transformational Solutions

Economic Options - 2

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- NM's Permanent Funds of \$19 billion, including Water Trust Permanent Funds
 - Requires changing use and investment rules – but these changes would be investments in NM's future.
 - Federal programs (e.g., under WaterSMART) that provide cost-match and partnership for both planning and infrastructure
 - Reclamation's Basin Study Program—partnership for planning adaptations to climate change
 - “Title XVI Water Re-Use” has so far provided over \$20 million to NM

And along with all of that . . .

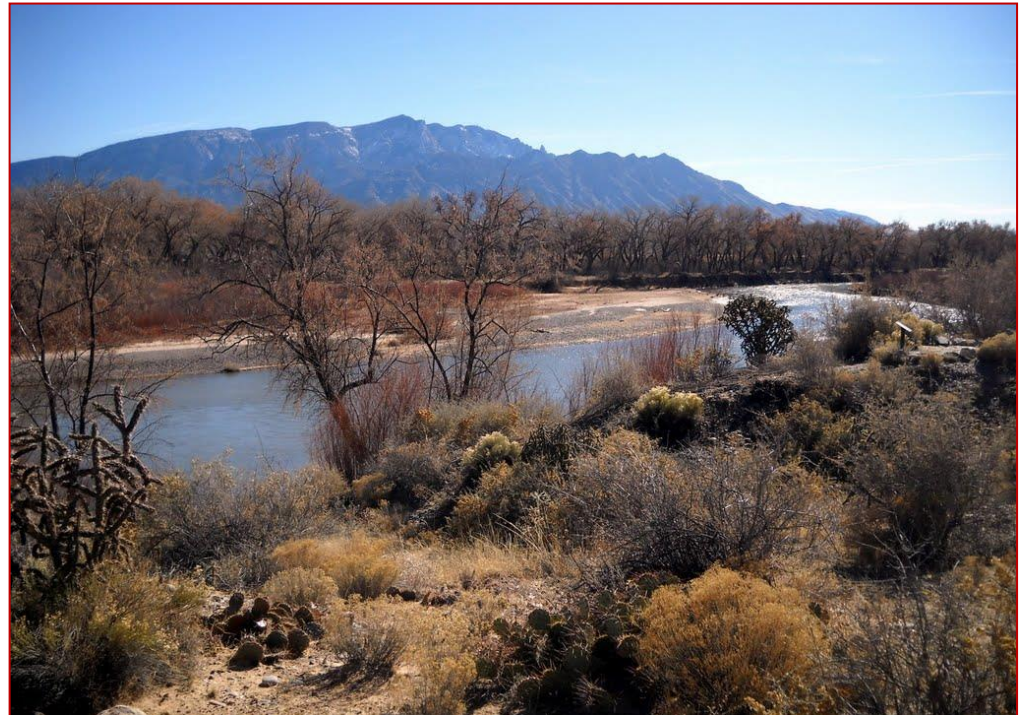
- Solutions to complex resource management problems require distributed effort.
- Any transformational solutions must include:
 - Water conservation, low use appliances, xeriscaping and reuse (ag, residential, commercial, industrial)
 - Bosque restoration/transformation
 - Increase aquifer recharge and storage
 - Brackish and produced water
 - Education and increased water awareness
 - New irrigation technologies and cropping patterns
 - New monitoring technologies (ag, residential, commercial, industrial)
 - Strategic investment in a broad portfolio of capital assets (infrastructure, watersheds and collaborative capacity)

Thanks

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